

2.25 Control of Materials

2.25.1 General

The Design-Builder shall be responsible for the quality of materials, methods of construction, and testing incorporated into the Project and shall comply with WSDOT requirements for approval of materials, sampling, and testing used in the Project. The Design-Builder's Quality Assurance (QA) procedures and Phase 2 Work Quality Management Plan shall ensure that operational techniques and activities comply with the PDB Contract, and that all materials used in the Work are of acceptable quality.

The Design-Builder shall be responsible for all materials acceptance testing on this Project except for the State Inspected and Tested Items listed in this Section. All references to performing materials acceptance testing in the Standard Specifications, WSDOT *Construction Manual*, or any other Contract Document shall be the responsibility of the Design-Builder's QA organization.

2.25.2 Mandatory Standards

The following is a list of Mandatory Standards that shall be followed for all design and construction related to this Section as referenced in TR Section 2.2, *Mandatory Standards*.

1. Special Provisions (Appendix 4)
2. Standard Specifications M 41-10 (Appendix 4)
3. WSDOT *Construction Manual* M 41-01 (Appendix 4)
4. WSDOT *Materials Manual* M 46-01 (Appendix 4)
5. *Qualified Products List* (QPL)
(<https://www.wsdot.wa.gov/Business/MaterialsLab/QPL.htm>)
6. *AASHTO Guide Specifications for LRFD Seismic Bridge Design*
7. *AASHTO LRFD Bridge Design Specifications*
8. *AASHTO LRFD Bridge Construction Specifications*

The Design-Builder may be required to use the materials forms listed in WSDOT *Construction Manual* Section 9-1.2B or additional existing WSDOT forms to meet the materials documentation requirements. The Design-Builder may develop substitute forms that shall include all information and fields from the applicable WSDOT materials forms being substituted. The Design-Builder shall modify the wording from the original WSDOT form to conform to the Design-Builder's terminology.

2.25.3 Buy America

This Section is intentionally omitted.

2.25.4 Materials Approval

Prior to use by the Design-Builder, all permanent materials shall require approval. Temporary materials that do not fall under Division 9 shall not require material

approval. Materials submittals shall be in the form of a QPL or a Request for Approval of Materials (RAM). Proprietary items may be listed in the plans and specifications that have been stamped by the Engineer of Record (EOR). The Construction Quality Assurance Manager (CQAM) shall establish the materials acceptance requirements in accordance with the Standard Specifications, WSDOT *Construction Manual*, and this Section for the material approved by the Materials Approval Engineer on the Record of Materials (ROM). If the Design-Builder uses the RAM process, then the Design-Builder shall use DOT Form 350-071, *Request for Approval of Material* (Appendix 4).

All permanent equipment, materials, and articles incorporated into the Project, and any temporary equipment, materials, and articles that have a specification shown in Division 9 of the Standard Specifications, such as erosion control devices and temporary traffic control devices, shall adhere to the following standards:

- Shall be new, unless specified otherwise in this Section
- Shall meet the requirements of the PDB Contract and shall be approved by the Materials Approval Engineer
- Shall be inspected or tested in accordance with this Section, WSDOT standards, and WSDOT manuals
- Shall not be used in the Work if they become unfit after being previously approved

The Design-Builder shall be responsible for the approval and acceptance of all materials by means of testing, inspection, and documentation. A Materials Certification Package, as described in this Section and approved by the Design-Builder's CQAM, shall be submitted to the WSDOT Engineer prior to the r to Completion of the Project.

Qualified Products List – The Design-Builder may use products listed on the most recent edition of WSDOT's QPL, without submitting a RAM. It is possible for a manufacturer to be listed in the QPL, but not for the product the Design-Builder may be intending to use. Proper use of the QPL is defined in Section 9-1.3A (2) of the WSDOT *Construction Manual*. The Design-Builder shall follow the acceptance requirements listed in the QPL for the product/material used.

Request for Approval of Materials – The RAM shall be used if the Design-Builder elects not to use the QPL, if the material is not listed in the QPL, or if not shown in the plans and specifications stamped by the EOR. The RAM shall be prepared by the Design-Builder and submitted to the Materials Approval Engineer for approval before the material is incorporated into the Work. Proper use of the RAM process is defined in Section 9-1.3B of the WSDOT *Construction Manual*. Approval of the material does not constitute acceptance of the material for incorporation into the Work.

Proprietary Items – Proprietary items are those items that the EOR has identified in the plans and specifications as a single source by manufacturer's make and model number. These items are considered approved if they are shown in the plans and specifications stamped by the EOR. Acceptance shall follow the requirements in this Section.

WSDOT Aggregate Source Approval Database – The Design-Builder may use any approved aggregate that is included in the WSDOT Aggregate Source Approval (ASA) database. If the Design-Builder wishes to use an aggregate source that is not in the WSDOT ASA database, preliminary samples shall be obtained and evaluated for quality by WSDOT for preliminary approval of the source. Testing performed for acceptance shall be performed by the Design-Builder's QA. Regardless of the status of the source, whether listed or not listed in the WSDOT ASA database, the source owner may be asked to provide testing results for toxicity in accordance with Section 9-03.21(1) of the Standard Specifications. The WSDOT ASA database can be accessed online at the WSDOT website under the Business tab then Materials Laboratory.

Optional Approval – The Design-Builder's CQAM may elect to request to accept materials listed in Table 9-1 of the WSDOT *Construction Manual* by invoking Section 9-1.1D – Optional Approval/Acceptance for Materials of the WSDOT *Construction Manual*. The request shall be approved by the Materials Approval Engineer with the concurrence of the WSDOT Engineer and submitted to the QA Team for final approval.

WSDOT Oversight – The Design-Builder shall distribute copies of all documents that list materials that have been approved to the WSDOT Engineer for review within 3 Calendar Days of receipt of approval. WSDOT will use these documents to verify the materials being used.

2.25.5 Acceptance of Materials

2.25.5.1 General

All materials that the Design-Builder intends to use shall be approved by the Materials Approval Engineer prior to use; shall be listed on the ROM with the established materials acceptance requirements; and shall be tested and inspected as required by this Section, field-verified, and documented. The Design-Builder shall also track and maintain a daily listing of material quantities. The materials acceptance program shall be in accordance with the WSDOT *Construction Manual*, WSDOT *Materials Manual*, Standard Specifications, or other provisions of the PDB Contract.

For most materials, the method of acceptance is in Chapter 9 of the WSDOT *Construction Manual*.

Record of Materials – The Design-Builder shall develop and use a tracking system for the ROM that is used to maintain the materials documentation information for the PDB Contract. Each Culvert Bundle Amendment shall have its own ROM.

The ROM is a program that is an electronic filing cabinet to assist the Design-Builder in managing and tracking required documentation. The ROM shall number and list all permanently incorporated materials used on the Project. Materials documentation such as approval, acceptance, field verification, Certificate of Materials Origin, estimated/placed/paid quantities, testing frequencies/number or tests, deficiencies, status (approved or rejected) and other documentation for each item of material placed shall be included. Examples of some Acceptance Criteria items may be testing, Fabrications Inspection,

Manufacturer's Certificate of Compliance, Miscellaneous Certificates of Compliance, Shop Drawings, Catalog Cuts, Proprietary items, and Field Acceptance. The Design-Builder is expected to keep up-to-date entries for accurate tracking of materials placed on the Site and update the ROM to reflect the actual materials and quantities placed.

The ROM shall, at a minimum have the same information and general level of detail as shown in the *ROM Sample* (Appendix 4). Regarding materials that are not evaluated statistically and used, i.e., walls and bridge structures, a key feature of the tracking system shall be to track material specific to each individual wall or bridge separately. The ROM shall be updated daily, kept at the Project office, and available for WSDOT Review and Comment.

Upon request from the Design-Builder, WSDOT will provide the Design-Builder's CQAM with an electronic file containing the most recent listing of the method of acceptance for materials, to assist the Design-Builder in developing the ROM.

Visual Acceptance – If a visual acceptance is required as part of the acceptance method for materials, or is the acceptance criteria, the materials shall be inspected by the Construction QA Inspector to ensure the materials meet the specifications. The Construction QA Inspector shall document the results of the inspection.

Manufacturer's Certificate of Compliance – If a Manufacturer's Certificate of Compliance is required as part of the acceptance criteria for materials, the CQAM shall review the certificate for compliance with the required specification, prior to incorporating the materials into the Project. The Manufacturer's Certificate of Compliance shall meet the requirements of this Section.

Field Verification – The Construction QA Inspector shall field verify all materials permanently incorporated into the Project. The field verification shall occur prior to or during the placement of materials and shall validate actual quantities incorporated into the Work. The QA Inspector shall inspect the product, material, and construction processes for conformity with the Contract Standards. The QA Inspector shall also inspect the product or material for shipment and handling damage. When the Design-Builder gives the authorization of payment of the materials placed, they are affirming that items requiring field verification have been checked and found to be acceptable. The field verification information is the link between what is specified by the EOR or approved on the RAM or QPL, and what is placed.

Proprietary Items – Proprietary items that have been approved in the plan sheets shall require acceptance by testing, inspection, or other forms of acceptance as required by the PDB Contract and shall also require field verification.

Tested Materials – The Design-Builder's QA staff shall test materials that require testing for acceptance. Materials listed in Table 6 of this Section, or any other materials where three or more tests are required, shall be statistically accepted. To use the Design-Builder's QA test results for acceptance, the QA test results shall be validated per Table 6 of this Section by comparing them with WSDOT's independent Quality Verification (QV) test results.

Materials that only require one or two QA tests for acceptance or that have less than three sublots shall require validation using the QA test results and WSDOT's QV test results in accordance with this Section.

All field and laboratory materials testing by the Design-Builder shall follow the methods described in the WSDOT *Materials Manual* and the PDB Contract.

Optional Acceptance – The Design-Builder's CQAM may elect to request to accept materials listed in Table 9-1 of the WSDOT *Construction Manual* by invoking Section 9-1.1D – Optional Approval/Acceptance for Materials of the WSDOT *Construction Manual*. These materials would be accepted by visual acceptance. The request is required to be approved by the Materials Approval Engineer with the concurrence of the WSDOT Engineer and submitted to the QA Team for final approval.

2.25.5.2 Validation of Quality Assurance Test Results

The CQAM shall be responsible for evaluating all the QA test results against WSDOT's QV test results to determine the acceptability of the QA test results by one of the following methods:

- When there are fewer than three QA and QV tests, the validation process shall be to compare the differences between the QA and QV test results to the limits in Table 3 of this Section or to the precision and bias statement in the test procedure.
- When there are three or more QA and QV tests, unless stated otherwise in Table 6, the validation process shall be performed by using the F and t-Test analysis as described in TR Section 2.28, *Quality Management Plan*.
- When there are three or more QA and QV tests, and Table 6 does not require F and t-Test analysis the validation process shall be to compare the differences between the QA and QV test results to the limits in Table 3 of this Section or to the precision and bias statement in the test procedure.

If the test results are validated, then the QA test results shall be used for acceptance. If the test results are not validated, then an investigation shall be conducted by the QA Team, as described in TR Section 2.28, *Quality Management Plan*, to resolve the discrepancy. If a resolution cannot be reached, then WSDOT's QV test results shall be used for acceptance.

2.25.5.3 Statistical Acceptance of Materials

Where specified, QA sampling and testing shall be performed by the Design-Builder's QA organization. Materials shall be statistically evaluated when defined in Table 6 of this Section.

The CQAM shall be responsible for statistically evaluating the validated QA test results as described in TR Section 2.28, *Quality Management Plan*. The CQAM shall use the Statistical Analysis of Materials (SAM) software to determine the acceptability of the test data, the total percent of the lot that is within specification limits, and an appropriate Composite Pay Factor (CPF). Refer to this Section for the statistical acceptance requirements.

2.25.5.4 Non-Statistical Acceptance of Materials

Materials that are not required by Table 6 to be statistically evaluated shall meet the minimum and maximum specifications. The CQAM shall be responsible for validating the QA and QV test results and comparing the validated QA test results to the specification limits.

For structural concrete, when validated concrete cylinder tests for compressive strengths fail to meet the minimum acceptance requirements, the concrete shall be evaluated for structural adequacy by the EOR. If the material is found to be structurally adequate by the EOR and the WSDOT Engineer concurs, the concrete may be left in place. If the material is found to be structurally deficient, the concrete shall be removed and replaced, or may be left in place with other remedial action as determined by the EOR with WSDOT concurrence. Payment for concrete that is left in place without meeting minimum acceptance requirements shall be adjusted in accordance with Section 6-02.3(5)L of the Standard Specification under the item "Material Compliance Price Adjustment".

2.25.5.5 Sample and Testing Frequency

Sample and testing frequencies shall comply with the testing frequencies defined in the Standard Specifications and the WSDOT *Construction Manual*, Section 9-3.7 and Table 6 of this Section. Additional testing requirements are included in the Standard Specifications and this Section.

If the tables do not define a material test or material sample rate, the QA Team shall establish the testing attributes and frequency. The QV sampling and testing shall occur at a frequency of one test or sample per five QA tests or samples.

During operational startup or unprecedented Project testing, the QV sampling and testing shall be required at the same frequency as the Design-Builder's QA frequency for the first five samples, to be able to establish a statistical base for verification and acceptance and on a more frequent basis as needed until the process is established to be under good control. Additional testing may be performed for validation of statistical modeling if the CQAM and the WSDOT Engineer deem it necessary. If the Design-Builder elects to take extra QA samples and tests to ensure quality, the QV sampling frequency shall continue to be based on the required frequency of one QV test for every five required QA tests.

2.25.5.6 Manufacturer's Certificate of Compliance

When authorized by this Section and prior to use, the CQAM may accept certain materials based on a Manufacturer's Certificate of Compliance as an alternative to material inspection and testing.

The Manufacturer's Certificate of Compliance shall identify the manufacturer; the type and quantity of material being certified; the applicable specifications being affirmed, and the signature of a responsible corporate official of the manufacturer; and include supporting mill tests or documents. A Manufacturer's Certificate of Compliance shall be furnished with each lot of material delivered to the Project, and the lot shall be clearly identified in the certificate.

Upon receipt of the Manufacturer's Certificate of Compliance, the CQAM shall review it for compliance with the specifications using WSDOT Form 350-572,

Manufacturer's Certificate of Compliance Checklist, or the Design-Builder's own checklist with the same information.

All materials used based on a Manufacturer's Certificate of Compliance may be sampled and tested at any time by the CQAM or by the WSDOT Engineer. Any material not conforming to the requirements shall be subject to rejection whether or not it has been used. The CQAM has the authority to refuse to accept materials based on a Manufacturer's Certificate of Compliance.

In lieu of using the material without a proper Manufacturer's Certificate of Compliance, the Design-Builder may request that the CQAM sample and test the materials prior to incorporating them into the Project. Any material not conforming to the requirements shall be subject to rejection whether or not it has been used.

2.25.5.7 Recycled Materials

The Design-Builder shall make their best effort to utilize recycled materials in the construction of the Project; the use of recycled concrete aggregate as specified in this Section is a requirement of the PDB Contract.

The Design-Builder shall submit a Recycled Material Utilization Plan on WSDOT Form 350-075A, *Recycled Concrete Aggregate Reporting* within 30 Calendar Days after each Culvert Bundle Amendment is executed. The plan shall provide the Design-Builder's anticipated usage of recycled concrete aggregates for meeting the requirements of this Contract. The quantity of recycled concrete aggregates shall be provided in tons and as a percentage of the planned quantity for eligible material listed in Section 9-03.21(1) E of the Standard Specifications, Table on Maximum Allowable Percent (By Weight) of Recycled Material. If the PDB Contract does not include Work that requires the use of a material that is included in the requirements for using materials, the Design-Builder may state in their plan that no recycled materials are proposed for use.

Within 30 Calendar Days after each Culvert Bundle Physical Completion, the Design-Builder shall report the quantity of recycled concrete aggregates that were utilized in the construction of the Project for each eligible item listed in Section 9-03.21(1)E of the Standard Specifications. The Design-Builder's report shall be provided on WSDOT Form 350-075A, *Recycled Concrete Aggregate Reporting*.

2.25.5.7.1 Recycling of Aggregate and Concrete Materials

The minimum quantity of recycled concrete aggregate shall be 25 percent of the total quantity of aggregate that is incorporated into the PDB Contract for those items listed in Section 9-03.21(1)E of the Standard Specifications, Table on Maximum Allowable Percent (By Weight) of Recycled Material that allow the use of recycled concrete aggregate. The percentage of recycled material incorporated into the Project for meeting the required percentage shall be calculated in tons based on the quantity of recycled concrete used on the Project and not as individual items.

If the Design-Builder's total cost for Work with recycled concrete aggregate is greater than without, the Design-Builder may choose to not use recycled concrete aggregate. When the Design-Builder does not meet the minimum requirement of

25 percent recycled concrete aggregate for the PDB Contract due to costs or any other reason, the following shall be submitted:

A cost estimate for each material listed in Section 9-03.21(1) E of the Standard Specifications that is utilized on the PDB Contract. The cost estimate shall include the following:

- a. The estimated costs for the Work for each material with 25 percent recycled concrete aggregate. The cost estimate shall include for each material a documented price quote from the supplier with the lowest total cost for the Work.
- b. The estimated costs for the Work for each material without recycled concrete aggregate.

The Design-Builder's cost estimates shall be submitted as an attachment to WSDOT Form 350-075A, *Recycled Concrete Aggregate Reporting*.

2.25.5.8 Acceptance of Small Quantities of Materials

Upon the request of the Design-Builder, the CQAM may elect to accept small quantities of materials without normal sampling and testing frequencies. The request is required to be approved by the Materials Approval Engineer with the concurrence of the WSDOT Engineer and submitted to the QA Team for final approval.

A material can be accepted as a small quantity if the proposed total quantity for the specific material is less than one testing frequency for the entire Project.

Questions that the Design-Builder shall consider prior to the use of small quantity acceptance are:

- Has the material been previously approved?
- Is the material certified?
- Is there a current mix design or reference design?
- Has it been recently tested with satisfactory results?
- Is the material structurally significant?

Small quantity acceptance may be accomplished by visual inspection, certification, or other methods. Acceptance of small quantities of materials by these methods shall be fully documented. Documentation of materials shall be provided by the Design-Builder's QA Inspector accepting the material. For visual acceptance, the CQAM shall have written documentation, such as an entry in the Construction QA Inspector's Daily Report (IDR) or a note on field records, with a statement as to the basis of acceptance of the material and the approximate quantity involved.

Small quantity acceptance may be used for any quantity of the following:

- Curbs and sidewalks
- Driveways
- Paved ditches and slopes

2.25.5.9 Fabrication Inspection

The WSDOT Fabrication Inspection Office will be responsible for in-plant inspection and approval of items fabricated specifically for the Project as detailed in the WSDOT *Construction Manual* and as determined by the WSDOT Engineer.

In the event the Design-Builder elects to have items fabricated beyond 300 miles from Seattle, Washington, the WSDOT Engineer will deduct from monies due or that may become due to the Design-Builder all costs to perform plant approval and fabrication acceptance inspection for the items listed in Fabrication Table 1 and costs for initial plant approval for items listed in Fabrication Table 2. Plants currently listed on the QPL for the items shown in Fabrication Table 1 and Fabrication Table 2 in this Section do not require plant approval.

Fabrication Table 1

The following are items that require Plant Approval and Fabrication Acceptance Inspection:

Anchor Bolts (ASTM A449 & F1554 Grade 105)
Bridge Bearings (Cylindrical, Disc, Fabric Pad, Low Rise, Pin, Pendulum, and Spherical)
Cattle Guards
Coated Piling and Casing
Epoxy-Coated Reinforcing Steel
Fabricated/Welded Miscellaneous Metal Drainage Items: Grate Inlets, and Drop Inlets
Longitudinal Seismic Restrainers
Metal Bridge Railing and Handrail
Metal Castings for Concrete Drainage, electrical, and Utility Items
Modular Expansion Joints
Paint & Powder Coating Facilities for Table 1 items
Precast Concrete Bridge Deck Panels
Precast Concrete Catch Basins, Manholes, Inlets, Drywells, Adjustment Sections (Greater than 12 inches) and Risers (Greater than 4 inches)
Precast Concrete Drain, Perforated Underdrain, Culvert, Storm Sewer, and Sanitary Sewer Pipe (Greater than 30 inches in Diameter or larger)
Precast Concrete Floor Panels
Precast Concrete Junction Boxes, Pull Boxes, Cable Vaults
Precast Concrete Marine Pier Deck Panels
Precast Concrete Pier Caps
Precast Concrete Retaining Walls, including Lagging Panels

Precast Concrete Roof Panels
Precast Concrete Structural Earth Walls, Noise Barrier Walls, Wall Panels, and Wall Stem Panels
Precast Concrete Traffic Barrier
Precast Concrete Vaults (Electrical, Utility, Drainage, etc.)
Precast Concrete Girders and Precast Bridge Components
Prestressed Concrete Girders
Prestressed Concrete Panels
Precast Reinforced Concrete Box Culverts
Precast Reinforced Concrete Split Box Culverts
Precast Reinforced Concrete Three-Sided Structures
Prestressed Concrete Piles
Retrofit Guardrail Posts with Welded Base Plates
Signal Standards (Only Type II – V, and High Mast Light Poles require fabrication inspection)
Sign Structures – Cantilever, Sign Bridge, and Bridge Mounted, (Roadside Type PLT/PLU do not require Fabrication Inspection)
Soldier Piles
Steel Bridges and Steel Bridge Components
Steel Column Jackets
Steel Light Standards and High Mast Light Poles
Strip Seal Expansion Joints
Structural Steel for Ferry Terminal Berthing, Pedestrian and Vehicle Loading Structures
Timber Bridges
Treated Timber and Lumber 6 by 6 inches or larger
Welded Structural Steel (Miscellaneous)
Anchor Cables and Components

Fabrication Table 2

The following are items that require Initial Plant Approval Only:

Epoxy Coating of Dowels and Tie bars for Concrete Pavement
Guardrail Posts and Blocks
Precast Concrete Blocks for Structural Earth Walls
Steel Pipe Piling

- Epoxy Coating of Dowels and Tie bars for Concrete Pavement

- 1 • Guardrail Posts and Blocks
- 2 • Precast Concrete Blocks for Structural Earth Walls
- 3 • Steel Pipe Piling

4 The deductions for fabrication inspection costs will be calculated as indicated in
5 the following Payment Table:

Payment Table

Zone	Place of Fabrication or Inspection Site	Reduction in Payment
1	Within 300 airline miles from Seattle	None*
2	Between 300 and 3,000 airline miles from Seattle	\$900 per inspection day**
3	Over 3,000 airline miles from Seattle	\$1200 per inspection day, **but not less than \$2,500 per trip

*Fabrication inspection expense does not apply for initial acceptance inspection in Zone 1. Re-inspection of items due to unacceptable workmanship or scheduling errors made by the Design-Builder, fabricator, or facility applying protective coatings will be assessed at \$70 per hour but not less than \$140 per inspection.

**An inspection day includes any Calendar Day or portion of a Calendar Day spent by one inspector inspecting, on standby, or traveling to and from, a place of fabrication. An additional cost per inspection day will be assessed for each additional inspector. Reimbursement will be assessed at \$280 per inspection day for weekends and holidays for each on-site inspector in travel status, but not engaged in inspection or travel activities when fabrication activities are not taking place.

6 Where fabrication of an item takes place in more than one zone, the reduction in
7 payment will be computed based on the entire item being fabricated in the farthest
8 of zones where any fabrication takes place on that item.

9 The rates for Zones 2 and 3 shall be applied for the full duration of time for all
10 fabrication inspection activities, including, but not limited to: plant approvals,
11 Prefabrication Meetings, fabrication, coatings, and final inspection. When an
12 inspection is for more than one contract the fabrication inspection costs shall be
13 prorated as determined by the WSDOT Engineer.

14 The Design-Builder shall notify the WSDOT Engineer at least 60 Calendar Days
15 prior to fabrication to allow for fabrication plant approval. If deficiencies are
16 found during the plant approval process, additional time will be required to obtain
17 fabrication plant approval.

18 The Design-Builder shall include the fabrication schedule in a detailed report
19 submitted to the WSDOT Engineer as part of the Monthly Contract Schedule
20 Update. Any change to the current published fabrication schedule shall be
21 communicated in writing to the WSDOT Engineer at least 3 Calendar Days before
22 the proposed effective date.

23 The Design-Builder shall notify the WSDOT Engineer 14 Calendar Days prior to
24 commencing fabrication of any item, and provide two copies of plans,
25 specifications, and approved Working Drawings for items being fabricated. No
26 fabrication inspection will be performed until the fabrication facility has been
27 approved by the WSDOT Engineer, and the approved Working Drawings have
28 been received.

A Prefabrication Meeting shall be held prior to fabrication of any major item requiring WSDOT fabrication inspection and approval. Major items include, at a minimum, the following:

- Precast concrete wall panels
- Prestressed concrete products
- Precast three-sided structures
- Steel pedestrian and highway bridges
- Wood bridges
- Bridge bearings
- Modular expansion joints
- Sign bridges, gantries, and cantilever sign bridges

The Design-Builder shall be responsible for scheduling the Prefabrication Meeting which shall be held at the facility where the fabrication will take place. The Prefabrication Meeting may be waived upon mutual agreement between the WSDOT Engineer and the Design-Builder. At a minimum, the fabricator's Production Manager and QA Manager, the CQAM, and the WSDOT Fabrication Inspection Office representative shall attend the Prefabrication Meeting.

WSDOT's Fabrication Inspector will be responsible for the following:

- Collecting and reviewing all material certification documents for acceptance
- Collecting and reviewing all the fabricator's inspection reports for acceptance
- Visually inspecting the fabricated items for acceptance
- Maintaining the IDR

Items requiring fabrication inspection shall be stamped or tagged for approval as specified in Section 9-2 of the WSDOT *Construction Manual* prior to the item being shipped to the Site. Exceptions to in-plant inspections are described in Section 9-4 of the WSDOT *Construction Manual*.

WSDOT will perform random dimensional inspections. The Design-Builder or the fabricator shall be responsible for ensuring compliance with the PDB Contract, performing the Quality Control (QC) inspections, and maintaining all QC records. These records shall be available for review by the WSDOT Engineer.

All items requiring WSDOT fabrication inspection shall be inspected and approved prior to being incorporated into the Project. All documentation collected as part of the WSDOT fabrication inspection shall be retained in the WSDOT Fabrication Inspection Office.

The fabricator or the Design-Builder shall be responsible for all materials QC sampling and testing. WSDOT's Fabrication Inspector shall be responsible for sampling and testing moisture-cured polyurethane, prestressing strand, and high-strength bolts that are being used by the fabricator and the shop coating facilities prior to their use.

In the event of noncompliance that will prevent approval of a fabricated item, WSDOT's Fabrication Inspector will notify the fabricator, the CQAM, and the

WSDOT Engineer for resolution. All risk for schedule delay due to nonapproval of a fabricated item shall be borne by the Design-Builder.

2.25.5.10 Sign Inspection by the Design-Builder

The Design-Builder shall be responsible for the inspection of permanent signs detailed in the Released for Construction Plans except for traffic signs in accordance with this Section. The Design-Builder shall verify that the signs meet the requirements of the PDB Contract.

The Design-Builder shall attach a “PEO Approved” decal (see Figure 9-9 in the WSDOT *Construction Manual*) to all approved signs. “PEO Approved” decals will be provided to the Design-Builder by WSDOT Materials and Fabrication Inspection Office. Sign mounting hardware provided by the sign fabricator shall be inspected and approved by the Design-Builder at the Site.

2.25.6 Handling and Storing Materials

In storage and handling, the Design-Builder shall protect materials against damage from careless handling, exposure to weather, mixture with foreign matter, and all other causes. The CQAM shall reject and refuse to test materials improperly handled or stored.

The Design-Builder shall repair, replace, or make good all WSDOT-provided materials that are damaged or lost due to the Design-Builder’s operation or while in the Design-Builder’s possession, at no expense to WSDOT.

2.25.7 Cement Concrete Pavement Mix Design and Batch Plant

The Design-Builder, or its designee, shall develop the Cement Concrete Pavement (CCP) mix design in accordance with the Standard Specifications. The CQAM shall verify that the concrete mix design conforms to the Contract Standards and to the Standard Specifications.

The concrete batch plant that the Design-Builder uses to produce cement concrete shall have a current National Ready Mix Concrete Association plant certification. The certification shall be maintained for the duration of the PDB Contract.

2.25.8 Hot Mix Asphalt Mix Design and Asphalt Concrete Plant

Hot Mix Asphalt Mix Design – The Design-Builder shall comply with the HMA mix design requirements of Section 5-04 of the Standard Specifications and TR Section 2.7, *Pavement* for HMA mix submittal criteria.

Hot Mix Asphalt Mixing Plant - The plants used by the Design-Builder to produce HMA shall conform to all the requirements of the Standard Specifications. The CQAM shall inspect the HMA plants and document that they meet all requirements.

2.25.9 State-Inspected and Tested Items

Certain items have been identified by the WSDOT Engineer as critical to the everyday operations of the Project. These items will be inspected and tested by WSDOT to ensure that they meet State and Federal requirements. These items include the following:

Traffic Signs – All traffic signs will be inspected at the point of fabrication by WSDOT. All inspected traffic signs will be tagged by WSDOT's Fabrication Inspector prior to shipment.

Hot Mix Asphalt – Unless otherwise explicitly stated elsewhere in this Section, the anti-strip requirements for the HMA mix designs will be performed by the State Materials Laboratory in Tumwater, Washington. The Design-Builder shall be responsible for all acceptance testing for HMA aggregate, mixture, in-place density, cyclic density, and coring as required. The Design-Builder shall be responsible for performing all QA street inspection duties.

Fabrication Inspected Items – WSDOT will be performing fabrication inspections on this Project in accordance with this Section.

Aggregate Source Approval and Qualified Products List– WSDOT will perform all preliminary ASA testing. The Design-Builder's QA shall perform all aggregate acceptance testing. WSDOT will determine materials approval requirements for the QPL.

Miscellaneous Materials Testing – The materials listed below are not statistically accepted and are not included in Table 6 of this Section but may still require testing. These materials shall generally require a single sample for each lot of material to be tested for acceptance. The Design-Builder shall be responsible for sampling the materials; providing the proper paperwork as described in Chapter 9 of the WSDOT *Construction Manual*; and delivering the samples to the State Materials Laboratory in Tumwater, Washington. The Design-Builder shall provide notice to WSDOT 14 Calendar Days prior to sampling and coordinate these activities with the WSDOT Engineer. The sampling requirements and the testing procedures shall be in accordance with the WSDOT *Construction Manual*:

- Materials that will be tested by WSDOT:
 - Bagged cement (when quantities exceed 40,000 pounds)
 - Mineral filler
 - Mechanical rebar splices
 - Epoxy systems and epoxy resin
 - Crack injection resin
 - Construction geosynthetic (Geotextiles and Geogrids)
- Materials tested by WSDOT if they are not on the QPL (submitted on a RAM):
 - Rebar chairs and spacers
 - Chain link fabric
 - Wire mesh
 - Fencing tension and barbed wire
 - Grade 1 fence posts
 - Wire fence line posts
- Materials tested by WSDOT if the "material lot" has not been previously tested and listed in the QPL:
 - Hot melt traffic button adhesive
 - Elastomeric expansion joint seals

- Two-component poured rubber joint sealer
- Hot-poured joint sealant and crack sealing – rubberized asphalt
- Pigmented sealer
- Paint for structures
 - Cured polyurethane
 - Intermediate and stripe coat single component moisture-cured polyurethane
- Topcoat single component moisture-cured polyurethane
- Curing compound
- Materials Tested by WSDOT for items listed in TR Section 2.25.5.8 as part of the fabrication inspection program:
 - Reinforcing bars (random sampling for verification program)
 - Prestressing/Post-tensioning reinforcement – strands
 - Prestressing/Post-tensioning reinforcement – bars
 - Moisture-cured polyurethane

2.25.10 Submittals

2.25.10.1 Owner's Manuals, Operating Instructions, and Product Data

For equipment and materials that are permanently incorporated into the work, the Design-Builder shall provide the WSDOT Engineer with all owner manuals and operating instructions furnished by the equipment or material manufacturer. The Design-Builder shall also submit two hard copies and one electronic copy of all manufacturer's warranties, guarantees, instruction sheets, parts lists, and other product data to the WSDOT Engineer for acceptance within 20 Calendar Days of installation of the items to which they relate. The WSDOT Engineer will advise the Design-Builder of the status of this product data within 7 Calendar Days of receipt.

The Design-Builder shall submit two hard copies and one electronic copy of all inspection reports to the WSDOT Engineer, and copies of testing reports within 24 hours of test completion. The Design-Builder shall ensure that the product data cited in this Section is organized and indexed in a manner to allow easy retrieval of information.

2.25.10.2 Materials Certification Package

The Design-Builder shall submit a separate, final Materials Certification Package for the Work in each Culvert Bundle Amendment to the WSDOT Engineer. The Materials Certification shall be signed by the EOR, and the CQAM. The Design-Builder may use WSDOT Form 350-115, *Contract Materials Checklist*, or develop its own checklist with the same information. The Materials Certification Package shall include all necessary supporting documentation. This documentation shall consist of all documentation practices used for material acceptance, and an explanation of any deficiencies noted in the checklist. The summary of this documentation shall be organized in an order similar to Division 9 of the Standard Specifications.

2.25.10.3 Miscellaneous Submittals

At the request of the WSDOT Engineer, the Design-Builder shall deliver to the WSDOT Engineer Work-related submittals that do not fit in the previous categories but are prepared in accordance with this Section.

2.25.11 Statistical Evaluation of Materials for Acceptance

2.25.11.1 General

Acceptance of materials shall be based on statistical evaluation for the applicable elements as defined in Table 6 of this Section. The Design-Builder shall use WSDOT's SAM software. The material shall be sampled at the point of acceptance in accordance with the applicable test procedure and specifications.

Since these specifications designate the payment of the material by other than a unit bid price basis, the unit price for calculating a price adjustment as stated in Table 5 of this Section will be used. The payment for the price adjustment shall be made under the item "Material Compliance Price Adjustment" and "HMA Compaction Price Adjustment."

Statistical acceptance for aggregate, HMA, and CCP concrete shall be in accordance with this Section. This Section replaces all references to statistical acceptance in the Standard Specifications.

For the purpose of statistical acceptance sampling and testing, a lot is defined as a minimum of three sublots and a maximum of 15 sublots, except that the final lot may be increased to a maximum of 25 sublots. All the test results obtained for a material type, such as gravel backfill for walls, Crushed Surfacing Base Course (CSBC) or gravel borrow shall be evaluated collectively, except for the following:

- **Hot Mix Asphalt** – Each Job Mix Formula (JMF) and all changes to that JMF shall be evaluated collectively. A compaction lot for HMA shall be in accordance with Section 5-04.3(10) C1 of the Standard Specifications.
- **Cement Concrete Pavement** – Each class of mix shall be evaluated collectively. The total volume of concrete for each lot shall be based on the calculated volume as defined in Section 5-05.4 of the Standard Specifications. All tests performed for QA purposes shall be recorded and incorporated into the lot.

The quantity represented by each sample will constitute a subplot. Sampling and testing for statistical acceptance shall be performed on a random basis at the frequency of one sample per subplot. A lot shall be not less than three uniform sized sublots with a maximum subplot size as stated in Table 6 of this Section for the material being sampled and tested.

After the first three sublots have been tested the CQAM shall compute and maintain the Composite Pay Factor (CPF) of the completed sublots. The CQAM shall furnish the WSDOT Engineer with a copy of the results of all QA testing and the CPF calculations within 24 hours of completing the testing or the next day of business.

A lot containing non-specification material will be accepted provided the CPF reaches the minimum value specified elsewhere. A lot containing non-specification material which fails to obtain at least the specified minimum CPF

shall be rejected by the CQAM. The CQAM shall take one or more of the following actions when rejected material has been incorporated into the Work:

1. Require complete removal and replacement with specification material at no additional cost to WSDOT.
2. At the Design-Builder's written request, and with the WSDOT Engineer's concurrence, allow corrective Work at no additional cost to WSDOT and then an appropriate price reduction that may range from no reduction to no payment based on the unit prices in Table 5 of this Section.

Any lot for which at least three samples have been obtained, and all the test results meet one of the appropriate criteria listed below, will receive at least a 1.00 CPF:

1. All test results are within the allowable limits specified for the item.
2. All test results that only have a Lower Specification Limit (LSL) are greater than or equal to that limit.
3. All test results that only have an Upper Specification Limit (USL) are less than or equal to that limit.

Lots represented by less than three samples or unsampled lots will be exempt from statistical-based acceptance.

2.25.11.2 Vacant

2.25.11.3 Rejected Material

The following actions shall be taken regarding defective materials and compaction:

1. **Rejected by the Design-Builder** - The Design-Builder may, prior to sampling, elect to remove any defective material and replace it with new material at no expense to WSDOT. Any such new material shall be sampled, tested, and evaluated for acceptance as a part of the subplot in accordance with this statistical sampling and testing procedure.
2. The CQAM may also reject a subplot that tests show to be defective. Such rejected material shall not be used in the Work, and the results of tests run on the rejected material will not be included in the original lot acceptance tests.
3. **Partial subplot** - In addition to the preceding random acceptance sampling and testing, the WSDOT Engineer or the QA tester may also isolate from a normal subplot any material that is suspected of being defective. Such isolated material shall not include any original sample locations. A minimum of three random samples of the suspect material shall be obtained and tested. The material shall then be statistically evaluated as an independent lot in accordance with this Section.
4. **An Entire subplot** - An entire subplot that is suspected of being defective may be rejected by the WSDOT Engineer or the QA tester. When a subplot is rejected, a minimum of two additional random samples from this subplot shall be obtained. These additional samples and the original subplot shall be evaluated as an independent lot.

5. **A Lot in Progress** - The Design-Builder shall shut down operations and shall not resume placement until such time as the CQAM and the WSDOT Engineer are satisfied that specification material can be produced:
- When the CPF of a lot in progress drops below 1.00 and the Design-Builder is taking no appropriate corrective action; or
 - When the PF_i for any test property of a lot in progress drops below 0.95 and the Design-Builder is taking no appropriate corrective action; or
 - When either the PF_i for any test property or the CPF of a lot in progress is less than 0.75.
6. **An Entire Lot** - An entire lot with a CPF of less than 0.75 will be rejected.

2.25.11.4 Quality Level Analysis

2.25.11.4.1 General

Quality level analysis is a statistical procedure for determining the percent compliance of the material with the PDB Contract. Quality level is the computed percent of material meeting these specifications and is determined from the arithmetic mean, (\bar{X}_m), and the sample standard deviation (S), for each test property of the lot.

The quality level calculations for HMA and other materials are completed using the formulas in this Section. For HMA the definition of the “x” value used in the calculations and the definition of the USL and LSL are in this Section. For other materials, the definition of the “x” value used in the calculations and the definition of the USL and LSL are included in this Section. All other terms and variables are the same for all calculations.

Any necessary rounding of test results or calculations will be accomplished according to the individual testing procedure, or, if not defined in the procedure, then according to the following rule:

- The final significant digit will not be changed when the succeeding digit is less than 5.
- The final significant digit will be increased by one when the succeeding digit is 5 or greater.

2.25.11.4.2 Hot Mix Asphalt

For gradation and percent binder, x = difference between an individual test value and the JMF.

For Air Voids (V_a) and Voids in Mineral Aggregate (VMA), x = individual test value.

USL = maximum allowable limit in Section 9-03.8(7) of the Standard Specifications.

LSL = minimum allowable limit in Section 9-03.8(7) of the Standard Specifications.

2.25.11.4.3 Other Materials

x = individual test value

USL = upper specification limit

LSL = lower specification limit

2.25.11.4.4 *Quality Level Calculation*

Procedures for determining the quality level and PFs for a material, other than HMA compaction, are as follows:

1. Determine the arithmetic mean, (X_m), for each specified material test property:

$$X_m = \frac{\sum x}{n}$$

Where:

$$\begin{array}{ll} \sum x & = \text{summation of individual test values} \\ n & = \text{total number test values} \end{array}$$

2. Compute the sample standard deviation, “S”, for each test property:

$$S = \left[\frac{n \sum x^2 - (\sum x)^2}{n(n-1)} \right]^{1/2}$$

$$\begin{array}{ll} \sum x^2 & = \text{summation of the squares of individual test values} \\ (\sum x)^2 & = \text{summation of the individual test values squared} \end{array}$$

3. Compute the upper quality index, (Q_U), for each test property:

$$Q_U = \frac{USL - X_m}{S}$$

4. Compute the lower quality index, (Q_L), for each test property:

$$Q_L = \frac{X_m - LSL}{S}$$

5. For each test property determine P_U (the percent within the USL it which corresponds to a given Q_U) from Table 1 of this Section. If the USL is 100.00 percent or is not specified, P_U will be 100.

For negative values of Q_U , P_U is equal to 100 minus the table P_U (e.g., $n = 15$ and $Q_U = -0.5$ will result in $P_U = 30$). If the value of Q_U does not correspond exactly to a figure in the table, use the next higher value.

6. For each test property determine P_L (the percent within the LSL which corresponds to a given Q_L) from Table 1 of this Section. If an LSL is zero or not specified, P_L will be 100.

For negative values of Q_L , P_L is equal to 100 minus the table P_L . If the value of Q_L does not correspond exactly to a figure in the table, use the next higher value.

7. For each test property determine the quality level (the total percent within specification limits):

$$\text{Quality Level} = (P_U + P_L) - 100.$$

8. Using the quality level from step 7, determine the PF_i from Table 2 of this Section for each property tested.

Where:

PF_i = Individual Pay Factor (for each property being tested). (The maximum PF_i is 1.05)

9. Determine the CPF for each lot:

$$CPF = \frac{f_1(PF_1) + f_2(PF_2) + \dots + f_j(PF_j)}{\sum f_i}$$

i=1 to j

Where:

CPF = Composite Pay Factor (of all individual Pay Factors (PF_i) for the lot)

Maximum CPF for Aggregates = 1.00

Maximum CPF for Aggregate Compaction = 1.00

Maximum CPF for PCCP Air & Compressive Strength = 1.05

Maximum CPF for HMA Mixture = 1.05

Maximum CPF for Compaction of Subgrade in a cut = 1.00

Maximum CPF for Embankment Compaction = 1.00

f_i = price adjustment factor for the test property, from Table 4

j = number of test properties being evaluated.

10. Determine the Material Compliance Price Adjustment, using the following formula:

$$MCPA = (CPF - 1) \times Q \times (K \times UP)$$

Where:

MCPA = Material Compliance Price Adjustment (\$)

K = "K" Factor

K = 0.6 for Aggregates

K = 0.4 for Aggregates Compaction

K = 0.60 for HMA Mixture

K = 1.00 for PCCP Air & PCCP Compressive Strength

K = 0.4 for Compaction of Subgrade in a Cut

K = 0.4 for Embankment Compaction

CPF = Composite Pay Factor (from step 9 above)

Q = Total Quantity of Material

UP = Unit Price (from table 5)

A payment or credit, for each lot, in the amount of the MCPA will be taken under bid item Material Compliance Price Adjustment.”

For CCP, the Material Compliance Price Adjustment is adjusted based on the volume adjustment as determined by Section 5-05.5(1) of the Standard Specifications.

2.25.11.4.5 Quality Level Calculation – Hot Mix Asphalt Compaction

The procedure of determining the quality level and *P_{Fi}* for HMA compaction are as follows:

1. Determine the arithmetic mean X_m , for the compaction of the lot:

$$X_m = \frac{\sum x}{n}$$

Where:

x = individual compaction test values for each subplot in the lot

$\sum x$ = summation of individual compaction test values

n = total number of test values

2. Compute the sample standard deviation, “ S ”, for each test property:

$$S = \left[\frac{n\sum x^2 - (\sum x)^2}{n(n-1)} \right]^{\frac{1}{2}} \left[\frac{n\sum x^2 - (\sum x)^2}{n(n-1)} \right]^{\frac{1}{2}}$$

Where:

$\sum x^2$ = summation of the squares of individual compaction tests

$(\sum x)^2$ = summation of the individual compaction test values squared

3. Compute the lower quality index, (Q_L):

$$Q_L = \frac{X_m - LSL}{S}$$

Where:

$$LSL = 92$$

4. Determine P_L (the percent within the LSL which corresponds to a given Q_L from Table 1. For negative values of Q_L , P_L is equal to 100 minus the P_L . If the value of Q_L does not correspond exactly to a figure in the table, use the next higher value.

5. Determine the quality level (the total percent within specification limits):
Quality Level = P_L

6. Using the quality level from step 5, determine the CPF from Table 2.

7. If the CPF determined from step 6 is 1.00 or greater: use that CPF for the compaction lot however, the maximum HMA compaction CPF using an LSL = 92 shall be 1.05. If the CPF from step 6 is not 1.00 or greater: repeat steps 3 through 6 using an LSL = 91.5. The value thus determined shall be

the HMA compaction CPF for that lot; however, the maximum HMA compaction CPF using an LSL = 91.5 shall be 1.00.

8. Determine the HMA Compaction Price Adjustment (CPA) from the table below, selecting the equation for CPA that corresponds to the value of CPF determined above.

Calculating HMA CPA

Value of CPF	Equation for Calculating HMA CPA
When CPF > 1.00	$CPA = [1.00 \times (CPF - 1.00)] \times Q \times UP$
When CPF = 1.00	CPA = \$0
When CPF < 1.0	$CPA = [0.60 \times (CPF - 1.00)] \times Q \times UP$

Where:

CPA = Compaction Price Adjustment for the HMA compaction lot (\$)

CPF = Composite Pay Factor for the compaction lot from step 7 above

Q = Quantity in the compaction lot (tons)

UP = Unit price of the HMA in the compaction lot (\$/ton) (from Table 5)

A payment or credit, for each HMA compaction lot, in the amount of the CPA will be taken under the bid item "HMA Compaction Price Adjustment".

1 **2.25.12 Materials Tables**

2 **2.25.12.1 Table 1 - Quality Levels/Quality Level Analysis by Standard**
3 **Deviation Method**

Estimated Percent of Work Within Specification Limits

Estimated Percent Within Specification Limits (P _U or P _L)	Upper Quality Index Q _U or Lower Quality Index Q _L								
	n=3	n=4	n=5	n=6	n=7	n=8	n=9	n=10 to 11	n=12 to 14
100	1.16	1.49	1.72	1.88	1.99	2.07	2.13	2.20	2.28
99	-	1.46	1.64	1.75	1.82	1.88	1.91	1.96	2.01
98	-	1.43	1.58	1.66	1.72	1.75	1.78	1.81	1.84
97	1.15	1.40	1.52	1.59	1.63	1.66	1.68	1.71	1.73
96	-	1.37	1.47	1.52	1.56	1.58	1.60	1.62	1.64
95	1.14	1.34	1.42	1.47	1.49	1.51	1.52	1.54	1.55
94	-	1.31	1.38	1.41	1.43	1.45	1.46	1.47	1.48
93	1.13	1.28	1.33	1.36	1.38	1.39	1.40	1.41	1.41
92	1.12	1.25	1.29	1.31	1.33	1.33	1.34	1.35	1.35
91	1.11	1.22	1.25	1.27	1.28	1.28	1.29	1.29	1.30
90	1.10	1.19	1.21	1.23	1.23	1.24	1.24	1.24	1.25
89	1.09	1.16	1.18	1.18	1.19	1.19	1.19	1.19	1.20
88	1.07	1.13	1.14	1.14	1.15	1.15	1.15	1.15	1.15
87	1.06	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.11
86	1.04	1.07	1.07	1.07	1.07	1.06	1.06	1.06	1.06
85	1.03	1.04	1.03	1.03	1.03	1.03	1.02	1.02	1.02
84	1.01	1.01	1.00	0.99	0.99	0.99	0.99	0.98	0.98
83	0.99	0.98	0.97	0.96	0.95	0.95	0.95	0.95	0.94
82	0.97	0.95	0.93	0.92	0.92	0.92	0.91	0.91	0.91
81	0.95	0.92	0.90	0.89	0.88	0.88	0.88	0.87	0.87
80	0.93	0.89	0.87	0.86	0.85	0.85	0.84	0.84	0.84
79	0.91	0.86	0.84	0.82	0.82	0.81	0.81	0.81	0.80
78	0.88	0.83	0.81	0.79	0.79	0.78	0.78	0.77	0.77
77	0.86	0.80	0.77	0.76	0.75	0.75	0.74	0.74	0.74
76	0.83	0.77	0.74	0.73	0.72	0.72	0.71	0.71	0.70
75	0.81	0.74	0.71	0.70	0.69	0.69	0.68	0.68	0.67
74	0.78	0.71	0.68	0.67	0.67	0.65	0.65	0.65	0.64
73	0.75	0.68	0.65	0.64	0.63	0.62	0.62	0.62	0.61
72	0.73	0.65	0.62	0.61	0.60	0.59	0.59	0.59	0.58
71	0.70	0.62	0.59	0.58	0.57	0.57	0.56	0.56	0.55
70	0.67	0.59	0.56	0.55	0.54	0.54	0.53	0.53	0.52
69	0.64	0.56	0.53	0.52	0.51	0.51	0.50	0.50	0.50
68	0.61	0.53	0.50	0.49	0.48	0.48	0.48	0.47	0.47
67	0.58	0.50	0.47	0.46	0.45	0.45	0.45	0.44	0.44
66	0.55	0.47	0.45	0.43	0.43	0.42	0.42	0.42	0.41
65	0.51	0.44	0.42	0.40	0.40	0.39	0.39	0.39	0.38
64	0.48	0.41	0.39	0.38	0.37	0.37	0.36	0.36	0.36
63	0.45	0.38	0.36	0.35	0.34	0.34	0.34	0.33	0.33

62	0.41	0.35	0.33	0.32	0.32	0.31	0.31	0.31	0.30
61	0.38	0.30	0.30	0.30	0.29	0.28	0.28	0.28	0.28
60	0.34	0.28	0.28	0.25	0.25	0.25	0.25	0.25	0.25
59	0.31	0.27	0.25	0.23	0.23	0.23	0.23	0.23	0.23
58	0.30	0.25	0.23	0.20	0.20	0.20	0.20	0.20	0.20
57	0.25	0.20	0.18	0.18	0.18	0.18	0.18	0.18	0.18
56	0.20	0.18	0.16	0.15	0.15	0.15	0.15	0.15	0.15
55	0.18	0.15	0.13	0.13	0.13	0.13	0.13	0.13	0.13
54	0.15	0.13	0.10	0.10	0.10	0.10	0.10	0.10	0.10
53	0.10	0.10	0.08	0.08	0.08	0.08	0.08	0.08	0.08
52	0.08	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
51	0.05	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Estimated Percent Within Specification Limits (P _U or P _L)	Upper Quality Index Q _U or Lower Quality Index Q _L					
	n=15 to 17	n=18 to 22	n=23 to 29	n=30 to 42	n=43 to 66	n=67 to ∞
100	2.34	2.39	2.44	2.48	2.51	2.56
99	2.04	2.07	2.09	2.12	2.14	2.16
98	1.87	1.89	1.91	1.93	1.94	1.95
97	1.75	1.76	1.78	1.79	1.80	1.81
96	1.65	1.66	1.67	1.68	1.69	1.70
95	1.56	1.57	1.58	1.59	1.59	1.60
94	1.49	1.50	1.50	1.51	1.51	1.52
93	1.42	1.43	1.43	1.44	1.44	1.44
92	1.36	1.36	1.37	1.37	1.37	1.38
91	1.30	1.30	1.31	1.31	1.31	1.31
90	1.25	1.25	1.25	1.25	1.26	1.26
89	1.20	1.20	1.20	1.20	1.20	1.20
88	1.15	1.15	1.15	1.15	1.15	1.15
87	1.11	1.11	1.11	1.11	1.11	1.11
86	1.06	1.06	1.06	1.06	1.06	1.06
85	1.02	1.02	1.02	1.02	1.02	1.02
84	0.98	0.98	0.98	0.98	0.98	0.98
83	0.94	0.94	0.94	0.94	0.94	0.94
82	0.91	0.90	0.90	0.90	0.90	0.90
81	0.87	0.87	0.87	0.87	0.87	0.87
80	0.83	0.83	0.83	0.83	0.83	0.83
79	0.80	0.80	0.80	0.80	0.80	0.79
78	0.77	0.76	0.76	0.76	0.76	0.76
77	0.73	0.73	0.73	0.73	0.73	0.73
76	0.70	0.70	0.70	0.70	0.70	0.70
75	0.67	0.67	0.67	0.67	0.67	0.66
74	0.64	0.64	0.64	0.64	0.64	0.63
73	0.61	0.61	0.61	0.61	0.61	0.60
72	0.58	0.58	0.58	0.58	0.58	0.57
71	0.55	0.55	0.55	0.55	0.55	0.54
70	0.52	0.52	0.52	0.52	0.52	0.52
69	0.49	0.49	0.49	0.49	0.49	0.49
68	0.47	0.46	0.46	0.46	0.46	0.46
67	0.44	0.44	0.43	0.43	0.43	0.43
66	0.41	0.41	0.41	0.41	0.41	0.40
65	0.38	0.38	0.38	0.38	0.38	0.38
64	0.36	0.35	0.35	0.35	0.35	0.35
63	0.33	0.33	0.33	0.33	0.33	0.32
62	0.30	0.30	0.30	0.30	0.30	0.30
61	0.28	0.28	0.28	0.28	0.28	0.28
60	0.25	0.25	0.25	0.25	0.25	0.25
59	0.23	0.23	0.23	0.23	0.23	0.23
58	0.20	0.20	0.20	0.20	0.20	0.20
57	0.18	0.18	0.18	0.18	0.18	0.18

56	0.15	0.15	0.15	0.15	0.15	0.15
55	0.13	0.13	0.13	0.13	0.13	0.13
54	0.10	0.10	0.10	0.10	0.10	0.10
53	0.08	0.08	0.08	0.08	0.08	0.08
52	0.05	0.05	0.05	0.05	0.05	0.05
51	0.03	0.03	0.03	0.03	0.03	0.03
50	0.00	0.00	0.00	0.00	0.00	0.00

1

1 2.25.12.2 Table 2 – Pay Factors

PAY FACTOR	Minimum Required Percent of Work Within Specification Limits for a Given Factor (P _U + P _L) – 100														
Category	n= 3	n= 4	n= 5	n= 6	n= 7	n= 8	n= 9	n= 10 to 11	n= 12 to 14	n= 15 to 17	n= 18 to 22	n= 23 to 29	n= 30 to 42	n= 43 to 66	n= 67 to ∞
1.05						10	10	100	100	100	100	100	100	100	100
1.04					10	0	0	95	96	96	96	97	97	97	97
1.03				10	0	99	97	92	93	93	94	95	95	96	96
1.02				0	98	96	94	89	90	91	92	93	93	94	94
1.01	10 0	10 0	100	99 98	97 95	94 92	91 89	87	88	89	90	91	92	92	93
1.00	69	75	78	80	82	83	84	85	86	87	88	89	90	91	92
0.99	66	72	76	78	80	81	82	83	84	85	86	87	89	90	91
0.98	64	70	74	76	78	79	80	81	82	84	85	86	87	88	90
0.97	63	68	72	74	76	77	78	79	81	82	83	84	86	87	88
0.96	61	67	70	72	74	75	76	78	79	81	82	83	84	86	87
0.95	59	65	68	71	72	74	75	76	78	79	80	82	83	84	86
0.94	58	63	67	69	71	72	73	75	76	78	79	80	82	83	85
0.93	57	62	65	67	69	71	72	73	75	76	78	79	80	82	84
0.92	55	60	63	66	68	69	70	72	73	75	76	78	79	81	82
0.91	54	59	62	64	66	68	69	70	72	74	75	76	78	79	81
0.90	53	57	61	63	65	66	67	69	71	72	74	75	77	78	80
0.89	51	56	59	62	63	65	66	68	69	71	72	74	75	77	79
0.88	50	55	58	60	62	64	65	66	68	70	71	73	74	76	78
0.87	49	53	57	59	61	62	63	65	67	68	70	71	73	75	77
0.86	48	52	55	58	59	61	62	64	66	67	69	70	72	74	76
0.85	46	51	54	56	58	60	61	62	64	66	67	69	71	72	75
0.84	45	49	53	55	57	58	60	61	63	65	66	68	70	71	73

0.83	44	48	51	54	56	57	58	60	62	64	65	67	69	70	72
0.82	43	47	50	53	54	56	57	59	61	62	64	66	67	69	71
0.81	41	46	49	51	53	55	56	58	59	61	63	64	66	68	70
0.80	40	44	48	50	52	54	55	56	58	60	62	63	65	67	69
0.79	39	43	46	49	51	52	54	55	57	59	61	62	64	66	68
0.78	38	42	45	48	50	51	52	54	56	58	59	61	63	65	67
0.77	36	41	44	46	48	50	51	53	55	57	58	60	62	64	66
0.76	35	39	43	45	47	49	50	52	54	56	57	59	61	63	65
0.75	33	38	42	44	46	48	49	51	53	54	56	58	60	62	64
REJECT	Values Less Than Those Shown Above														

- 1 Reject Quality Levels Less Than Those Specified for a 0.75 *PFi*.
- 2 **Note:** If the value of $(P_U + P_L) - 100$ does not correspond to a $(P_U + P_L) - 100$ value in this table, use the next
- 3 smaller $(P_U + P_L) - 100$ value.

1 **2.25.12.3 Table 3 – Allowable Tolerance for Non-Statistical Materials**

Quality Verification Test vs. Quality Assurance Test

SOILS	
TEST	QUALITY VERIFICATION TEST vs. QUALITY ASSURANCE TEST, +/-
Plasticity Index (AASHTO T 90)	3
No. 200 Sieve, % (WAQTC FOP for AASHTO T 11/T 27)	1.5
Optimum Moisture, % (WAQTC FOP for AASHTO T 265)	1.0
Proctor Density, lb/ft ³ (WAQTC FOP for AASHTO T 99)	2
Compaction, % (AASHTO T 310)	2.0

Aggregate (Base, Subbase, Backfill, and Mineral Aggregates)	
TEST	QUALITY VERIFICATION TEST vs. QUALITY ASSURANCE TEST, +/-
Sieve Analysis (Non-statistical Item) WAQTC FOP for AASHTO T 11/T 27	
No. 4 sieve & larger	5.0
No. 6 to No. 10 sieve	4.0
No. 10 to No. 80 sieve	3.0
No. 80 and No. 200 sieve	2.0
Fractured Faces (WAQTC FOP for AASHTO T 335)	5
Sand Equivalent (WAQTC FOP for AASHTO T 176)	5

HOT MIX ASPHALT	
TEST	QUALITY VERIFICATION TEST vs. QUALITY ASSURANCE TEST, +/-
Mechanical Analysis of Extracted Aggregate (Non-statistical Item) WAQTC FOP for AASHTO T 30	
No. 4 sieve & larger	5.0
No. 6 to No. 10 sieve	4.0
No. 10 to No. 80 sieve	3.0
No. 80 and No. 200 sieve	2.0
HMA Binder (WAQTC FOP for AASHTO T 308)	0.3

Compaction, % (WAQTC FOP for AASHTO T 355)	2.0
--------------------------------------------	-----

CEMENT CONCRETE	
TEST	QUALITY VERIFICATION TEST vs. QUALITY ASSURANCE TEST, +/-
Slump of Concrete, mm (WAQTC FOP for AASHTO T 119)	
$\frac{3}{4}$ inch-Max. Aggregate and Specified Slump 3 inches or less	$\frac{1}{2}$
1 $\frac{1}{2}$ inch-Max. Aggregate and Specified Slump greater than 3 inches	1
Air Content, % (WAQTC FOP for AASHTO T 152)	1.0
Temperature, °F (WAQTC FOP for AASHTO T 309)	1
Grout Cubes (WSDOT T 813)	20 percent of the average
Concrete Cylinders (WSDOT FOP for AASHTO T -22)	15 percent of the average

1

2.25.12.4 Table 4 – Price Adjustment Factors

Item	Maximum Size Sieve: 100 % pass (Note 1)	Nominal Maximum Size Sieve (Note 2)	Other Specification Sieves #4 and Larger	Specification sieves #8 to #100	#200 Sieve	Sand Equivalent	Fracture (Note 3)	Dust Ratio	Other	Compaction
Crushed Screening	2	2	5	5	20		15	-		
Ballast	2	2	5	5	10	15	-	15		(Note 4)
Permeable Ballast	2	2	5	5	-	-	15	-		(Note 4)
Crushed Surfacing	2	2	5	5	10	15	15	-		(Note 4)
Maintenance Rock	2	2	5	5	10	15	15	-		
Streambed Sediment	2	2	5	5	10	-	-	-		
Gravel Base	-	2	5	-	6	10	-	10		(Note 4)
Gravel Backfill for Foundations Class A (Note 5)	2	2	5	5	6	10	15	10		(Note 4)
Gravel Backfill for Foundations Class B	-	2	5	-	6	10	-	10		(Note 4)
Gravel Backfill for Walls	2	2	5	-	6	10	-	10		(Note 4)
Gravel Backfill for Pipe Zone Bedding	2	2	5	5	6	10	-	-		(Note 4)
Gravel Backfill for Drains	2	2	5	-	6	-	-	-		
Gravel Backfill for Drywells	2	2	5	-	6	-	-	-		
Backfill for Sand Drains	-	2	5	3	10	-	-	-		
Sand Drainage Blankets	-	2	5	3	10	-	-	-		
Gravel Borrow	2	2	5	5	5	10	-	-		

Select Borrow	2	2	5	5	6	10	-	-		
Gravel Borrow for Structural Earth Walls	2	2	5	5	5	10	-		Resistivity 10, pH 10, Chlorides 5, Sulfates 5	
Foundation Material, Class A & B	-	2	3	-	-	-	-	-		
Foundation Material, Class C	2	-	3	-	-	-	-	-		
Bank Run Gravel for Trench Backfill	2	2	5	-	6	10	-	10		(Note 4)
Hot Mix Asphalt	2	2	2	15	20	-	-	-	Asphalt Binder Content 40 VMA 2, V _a 20	
HMA Mineral Aggregate	-	-	-	-	-	15	15		Uncompacted Void Content 15	
Structural Concrete	-	-	-	-	-	-	-	-	Cylinder Strength	
Paving Concrete	-	-	-	-	-	-	-	-	Cylinder Strength 6/Air Content 4	
Concrete Aggregate	2	2	2	10	20	-	-	-		
Embankment									Compaction 1.0	

Note 1: 100 percent passing size shall be analyzed with an LSL of 99 percent.

Note 2: Nominal maximum size sieve is the largest sieve in the applicable specifications upon which any material is permitted to be retained.

Note 3: Price adjustment factor applies where criteria are contained in the material specification.

Note 4: Compaction has a price adjustment factor of 1.0 and shall be statistically evaluated independently from other test properties in this table.

Note 5: Use the price adjustment factors for either Section 9-03.9(1) Ballast or 9-03.9(3) CSBC for the material that is actually used.

1 **2.25.12.5 Table 5 – Materials Unit Prices**

Material	Unit Price/Ton	Unit Price/CY
Select Borrow	\$15.00	\$30.00
Gravel Borrow	\$15.00	\$30.00
Foundation Material Class A & B	\$25.00	\$50.00
Foundation Material Class C	\$25.00	\$50.00
Bank Run Gravel for Trench Backfill	\$30.00	\$60.00
Ballast	\$20.00	\$40.00
Permeable Ballast	\$25.00	\$50.00
Streambed Sediment	\$30.00	\$60.00
Crushed Surfacing	\$20.00	\$40.00
Maintenance Rock	\$20.00	\$40.00
Gravel Base	\$20.00	\$30.00
Crushed Screenings	\$20.00	\$40.00
Gravel Backfill for Walls	\$30.00	\$60.00
HMA - Mineral Aggregate, Fracture, SE and Uncompacted Void Content	\$15.00	
Hot Mix Asphalt - All Mixes	\$85.00	
Gravel Backfill for Foundation Cl. A	\$30.00	\$60.00
Gravel Backfill for Foundation Cl. B	\$30.00	\$60.00
Gravel Backfill for Pipe Zone Bedding	\$30.00	\$60.00
Gravel Backfill for Drains	\$30.00	\$60.00
Gravel Backfill for Drywalls	\$30.00	\$60.00
Backfill for Sand Drains	\$30.00	\$60.00
Sand Drainage Blanket	\$30.00	\$60.00
Concrete Aggregate (Note 1)	\$15.00	\$30.00
Cement Concrete		\$300.00
Cement Concrete Pavement		\$150.00
Gravel Borrow for Structural Earth Walls	\$30.00	\$60.00
Roadway Excavation (compaction)		\$8.00
Embankment	\$6.00	\$12.00
Note 1: Material Compliance Price Adjustment only applies to the actual type and quantity of aggregate used in the concrete.		

2 **2.25.12.6 Table 6 – Sampling and Testing Frequency**

Materials or Item	Test Description	Test Method	Quality Assurance Sample	Quality Verification Sample	F and t Statistical Evaluation	Statistical Acceptance
Aggregates						
Gravel Borrow	Grading	WAQTC FOP for AASHTO T 27/T 11	Note 1	Note 2	No	Yes

Materials or Item	Test Description	Test Method	Quality Assurance Sample	Quality Verification Sample	F and t Statistical Evaluation	Statistical Acceptance
	Sand Equivalent	WAQTC FOP for AASHTO T 176	Note 1	Note 2	No	Yes
Select Borrow	Grading	WAQTC FOP for AASHTO T 27/T 11	Note 1	Note 2	No	Yes
	Sand Equivalent	WAQTC FOP for AASHTO T 176	Note 1	Note 2	No	Yes
Sand Drainage Blanket	Grading	WAQTC FOP for AASHTO T 27/T 11	Note 1	Note 2	No	Yes
Gravel Base	Grading	WAQTC FOP for AASHTO T 27/T 11		Note 2	No	Yes
	Sand Equivalent	WAQTC FOP for AASHTO T 176	Note 1	Note 2	No	Yes
	Dust Ratio	Calculate	Note 1	Note 2	No	Yes
Crushed Surfacing	Grading	WAQTC FOP for AASHTO T 27/T 11	Note 1	Note 2	Yes	Yes
	Sand Equivalent	WAQTC FOP for AASHTO T 176	Note 1	Note 2	Yes	Yes
	Fracture	WAQTC FOP for AASHTO T 335	Note 1	Note 2	Yes	Yes
Maintenance Rock	Grading	WAQTC FOP for AASHTO T 27/T 11	Note 1	Note 2	Yes	Yes
	Sand Equivalent	WAQTC FOP for AASHTO T 176	Note 1	Note 2	Yes	Yes
	Fracture	WAQTC FOP for AASHTO T 335	Note 1	Note 2	Yes	Yes
Streambed Sediment	Grading	WAQTC FOP for AASHTO T 27/T 11	Note 1	Note 2	No	Yes

Materials or Item	Test Description	Test Method	Quality Assurance Sample	Quality Verification Sample	F and t Statistical Evaluation	Statistical Acceptance
Ballast	Grading	WAQTC FOP for AASHTO T 27/T 11	Note 1	Note 2	No	Yes
	Sand Equivalent	WAQTC FOP for AASHTO T 176	Note 1	Note 2	No	Yes
	Dust Ratio	Calculate	Note 1	Note 2	No	Yes
Permeable Ballast	Grading	WAQTC FOP for AASHTO T 27/T 11	Note 1	Note 2	No	Yes
	Fracture	WAQTC FOP for AASHTO T 335	Note 1	Note 2	No	Yes
Backfill for Sand Drain	Grading	WAQTC FOP for AASHTO T 27/T 11	Note 1	Note 2	No	Yes
Crushed Screenings	Grading	WAQTC FOP for AASHTO T 27/T 11	Note 1	Note 2	Yes	Yes
	Fracture	WAQTC FOP for AASHTO T335	Note 1	Note 2	Yes	Yes
Gravel Backfill for Foundations Class A	Grading	WAQTC FOP for AASHTO T 27/T 11	Note 1	Note 2	Yes	Yes
	Sand Equivalent	WAQTC FOP for AASHTO T 176	Note 1	Note 2	Yes	Yes
Gravel Backfill for Foundations Class B	Grading	WAQTC FOP for AASHTO T 27/T 11	Note 1	Note 2	No	Yes
	Sand Equivalent	WAQTC FOP for AASHTO T 176	Note 1	Note 2	No	Yes
	Dust Ratio	Calculate	Note 1	Note 2	No	Yes
Gravel Backfill for Walls	Grading	WAQTC FOP for AASHTO T 27/T 11	Note 1	Note 2	No	Yes
	Dust Ratio	Calculate	Note 1	Note 2	No	Yes

Materials or Item	Test Description	Test Method	Quality Assurance Sample	Quality Verification Sample	F and t Statistical Evaluation	Statistical Acceptance
	Sand Equivalent	WAQTC FOP for AASHTO T 176	Note 1	Note 2	No	Yes
Gravel Backfill for Pipe Zone Bedding	Grading	WAQTC FOP for AASHTO T 27/T 11	Note 1	Note 2	No	Yes
	Sand Equivalent	WAQTC FOP for AASHTO T 176	Note 1	Note 2	No	Yes
Gravel Backfill for Drains, and Drywells	Grading	WAQTC FOP for AASHTO T 27/T 11	Note 1	Note 2	No	Yes
Gravel Borrow for Structural Earth Walls	Grading	WAQTC FOP for AASHTO T 27/T 11	Note 1	Note 2	No	Yes
	Sand Equivalent	WAQTC FOP for AASHTO T 176	Note 1	Note 2	No	Yes
CC Paving						
Coarse Aggregate	Grading	WAQTC FOP for AASHTO T 27/T 11	Note 1	Note 2	Yes	Yes
Fine Aggregate	Grading	WAQTC FOP for AASHTO T 27/T 11	Note 1	Note 2	Yes	Yes
Combined Aggregate	Grading	WAQTC FOP for AASHTO T 27/T 11	Note 1	Note 2	Yes	Yes
CC Paving (Completed Mix)	Compressive Strength (28 day)	WAQTC FOP for AASHTO T 23	Note 1	Note 2	Yes	Yes
	Air Content	WAQTC FOP for AASHTO T 152	Note 1	Note 2	Yes	Yes
CC Paving Cores			Note 1	Note 2		
	Thickness	AASHTO T 359	Note 1	Note 2	No	No
CC Paving Cement	Chemical and Physical		Certification			
CC Structures						

Materials or Item	Test Description	Test Method	Quality Assurance Sample	Quality Verification Sample	F and t Statistical Evaluation	Statistical Acceptance
Coarse Aggregate	Grading	WAQTC FOP for AASHTO T 27/T 11	Note 1	Note 2	Yes	Yes
Fine Aggregate	Grading	WAQTC FOP for AASHTO T 27/T 11	Note 1	Note 2	Yes	Yes
Combined Aggregate	Grading	WAQTC FOP for AASHTO T 27/T 11	Note 1	Note 2	Yes	Yes
CC Structures (Completed Mix)						
	Slump – Consistency	WAQTC FOP for AASHTO T 119	Note 3	Note 2	No	No
	Air Content	WAQTC FOP for AASHTO T 152	Note 3	Note 2	Yes	No
	Compressive Strength (28 day)	WAQTC FOP for AASHTO T 23	Note 1	Note 2	Yes	No
CC Structures Cement	Chemical and Physical		Certification			
Grouts	Grout Cube Strength	WSDOT FOP for AASHTO T 106	One set per day	One set for every 5 days	Yes	Yes
Reinforcement						
Reinforcing Bars	Mill Testing		Manufacturer's Certification of Compliance and Certified Mill Test Report	Random sampling form fabrication verification program	No	N/A
Prestressing/Post-Tensioning Reinforcement – Strand	Yield Strength Elongation Breaking Strength Thickness	Sample per AASHTO M 203 Test per AASHTO T 244	Manufacturer's Certification of Compliance, Certified Mill Test Report, and the stress/strain curve	One sample for every 25 reels	No	N/A

Materials or Item	Test Description	Test Method	Quality Assurance Sample	Quality Verification Sample	F and t Statistical Evaluation	Statistical Acceptance
			Verification testing at one sample for every five reels			
Prestressing/Post-Tensioning Reinforcement – Bars	Yield Strength Elongation Breaking Strength	Sample and Test per AASHTO T 244	Two samples from each heat	Samples every five heats, two samples per heat	No	N/A
Asphalt Concrete Pavement						
Asphalt Concrete Pavement (Completed Mix) See Note 4	Grading	WAQTC FOP for AASHTO T 308 and WAQTC FOP for T 30	Note 1	Note 2	Yes	Yes
	Asphalt Content	WAQTC FOP for AASHTO T 308	Note 1	Note 2	Yes	Yes
	Air Voids (Va) and Voids in Mineral Aggregate (VMA)	WSDOT FOP for AASHTO T 312 and WSDOT SOP 731	Note 1	Note 2	Yes	Yes
	Maximum Density (Rice Density)	WSDOT FOP for AASHTO T 209	Note 1	Note 2	Yes	Yes
	Compaction	WAQTC FOP for AASHTO T 355	Note 1	Note 2	Yes	Yes
	Cyclic Density	WSDOT SOP 733		As needed	No	No
Combined Aggregate	Sand Equivalent (Sampled at cold feed)	WAQTC FOP for AASHTO T 176	Note 1	Note 2	Yes	Yes
	Fracture (Sampled at cold feed)	WAQTC FOP for AASHTO T335	Note 1	Note 2	Yes	Yes

Materials or Item	Test Description	Test Method	Quality Assurance Sample	Quality Verification Sample	F and t Statistical Evaluation	Statistical Acceptance
	Uncompacted Void Content (Sampled at cold feed)	WSDOT FOP for AASHTO T304	Note 1	Note 2	Yes	Yes
Mineral Filler	Sp. G and PI		Certification			
Asphalt Materials						
Paving Asphalt (PG, Etc.)	Sampling for DOT Verification Testing	WAQTC FOP for AASHTO R 66	Two 1 Qt. cans Every other mix acceptance sample of HMA		No	N/A
Emulsion for Bituminous Surface Treatment (BST)	Sampling for DOT Verification Testing	WAQTC FOP for AASHTO R 66	–Two 1 Qt. cans Every other shipment		No	N/A
Emulsion for HMA Tack Coat		WAQTC FOP for AASHTO R 66	Two 1 Qt. cans, one sample per Project (Statistically Evaluated Projects Only)		No	N/A
Compaction						
Embankment	Compaction	WAQTC FOP for AASHTO T 310 and WSDOT SOP 615	Note 1	Note 2	Yes	Yes
Cut Section	Compaction	WAQTC FOP for AASHTO T 310 and WSDOT SOP 615	Note 1	Note 2	Yes	Yes
Surfacing	Compaction	WAQTC FOP for AASHTO T 310 and WSDOT SOP 615	Note 1	Note 2	Yes	Yes

Materials or Item	Test Description	Test Method	Quality Assurance Sample	Quality Verification Sample	F and t Statistical Evaluation	Statistical Acceptance
Backfill	Compaction	WAQTC FOP for AASHTO T 310 and WSDOT SOP 615	Note 1	Note 2	Yes	Yes
Compaction Standards						
Subgrade Embankment	Granular Compaction Standards	WSDOT T606 or WAQTC FOP for AASHTO T 180	Develop density curve for each material type used on Project.	Split sample provided to QV for testing	N/A	N/A
	Moisture Density Curve	WAQTC FOP for AASHTO T 99, WAQTC FOP for AASHTO T 272	Develop density curve for each material type used on Project.	Split sample provided to QV for testing	N/A	N/A
Granular Embankment	Granular Compaction Standards	WSDOT T606 or WAQTC FOP for AASHTO T 180	Develop density curve for each material type used on Project.	Split sample provided to QV for testing	N/A	N/A
	Moisture Density Curve	WAQTC FOP for AASHTO T 99, WAQTC FOP for AASHTO T 272	Develop density curve for each material type used on Project.	Split sample provided to QV for testing	N/A	N/A
Backfill	Granular Compaction Standards	WSDOT T606 or WAQTC FOP for AASHTO T 180	Develop density curve for each material type used on Project.	Split sample provided to QV for testing	N/A	N/A
	Moisture Density Curve	WAQTC FOP for AASHTO T 99, WAQTC FOP for AASHTO T 272	Develop density curve for each material type used on Project.	Split sample provided to QV for testing	N/A	N/A

Materials or Item	Test Description	Test Method	Quality Assurance Sample	Quality Verification Sample	F and t Statistical Evaluation	Statistical Acceptance
Surfacing	Granular Compaction Standards	WSDOT T606 or WAQTC FOP for AASHTO T 180	Develop density curve for each material type used on Project.	Split sample provided to QV for testing	N/A	N/A
	Moisture Density Curve	WAQTC FOP for AASHTO T 99, WAQTC FOP for AASHTO T 272	Develop density curve for each material type used on Project.	Split sample provided to QV for testing	N/A	N/A

Note 1: See the WSDOT *Construction Manual*, Section 9-3.7 for sampling and testing frequencies.

Note 2: One QV test for every five QA tests, once process is under control. See section 2.25.5.5.

Note 3: If at any time one load of concrete fails to meet specifications for slump, air content, or temperature, continue testing every load until one successive load meet specifications, and then continue with the established sampling frequency.

Note 4: Mix design conformation samples shall be submitted to the State Materials Laboratory Bituminous Concrete Section. For all projects, submit one sample per day from the first 5 days of production for each plant and one sample every 5th day of production thereafter. The conformation samples shall be taken in conjunction with and be a representative quarter of the acceptance samples taken for the Project as described in WAQTC FOP for AASHTO R47.

If an acceptance sample is not required for any day of production, then a confirmation sample is not required.

Note 5: When Compaction Standards or Moisture Density Curves are developed by QA and QV, whichever value is greater shall be used for testing purposes. Differences of greater than 3lbs/ft³ in Compaction Standards or Moisture Density Curves shall be investigated by the Independent Assurance Inspector for purposes of procedural resolution by the Quality Assurance Task Force.